

## c l a i m s

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1. A method of reducing a peak-to-average power ratio of a signal to be  
5 transmitted, the method comprising the steps of:

- detecting a portion of the signal being above a clipping threshold level,
- decomposing the portion of the signal into a number of functions,  
10 the number of functions being proportional to a duration of the portion of the signal,
- performing the number of soft-clippings on the signal by means of a reference function, the positions of the soft-clippings being given by the positions of the functions and the respective scalings of the reference function being determined by the amplitudes of the  
15 functions.

2. The method of claim 1, further comprising parameterising the functions by determining an amplitude value and a position value for each function.

3. The method of claim 1, the functions being symmetric.

4. The method of claim 1, the step of decomposing being performed by  
20 minimising of

$$\sum_{i=1}^N [P - f(x_i, A_i)]^2$$

or

$$\sum_{i=1}^N |P - f(x_i, A_i)|$$

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where

N: number of functions  $f$ ,

$x_i$ : position of function  $f$ ,

$A_i$ : amplitude of function  $f$

5 P: portion of the signal above clipping threshold level.

5. The method of claim 1, whereby the soft-clipping is performed by using the positions of the functions as peak positions for subtracting of the reference function.

10 6. A computer program product, in particular digital storage medium, for reducing a peak-to-average power ratio of a signal to be transmitted, comprising program means for performing the steps of:

- decomposing of a portion of the signal being above a clipping threshold level into a number of functions, the number of functions being proportional to a duration of the portion of the signal,

15 - performing the number of soft-clippings on the portion of the signal by means of a reference function, the positions of the soft-clippings being given by the positions of the functions and the respective scalings of the reference function being determined by the amplitudes of the functions.

20 7. An electronic circuit for reducing a peak-to-average power ratio of a signal to be transmitted, the electronic circuit comprising:

- means for detecting a portion of the signal being above a clipping threshold level,

25 - means for decomposing of the portion of the signal into a number of functions, the number of functions being proportional to a duration of the portion of the signal,

- means for performing the number of soft-clippings on the signal by means of a reference function, the positions of the soft-clippings being given by the positions of the functions and the respective scalings of the reference function being determined by the amplitudes of the functions.

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8. An end user telecommunication device for sending of a signal, the end user telecommunication device comprising signal processing means for reducing a peak-to-average power ratio of the signal by the steps of:

- detecting a portion of the signal being above a equipping threshold level,
- decomposing the portion of the signal into a number of functions, the number of functions being proportional to a duration of the portion of the signal,
- performing the number of soft-clippings on the signal by means of a reference function, the positions of the soft-clippings being given by the positions of the functions and the respective scalings of the reference function being determined by the amplitudes of the functions.

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9. A transmitter comprising:

- means for multi-carrier synthesis to provide a multi-carrier multiplexed signal to be transmitted,
- means for reducing a peak-to-average power ratio of the signal by the steps of:
  - a) detecting a portion of the signal being above a clipping threshold level,

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- b) decomposing the portion of the signal into a number of functions, the number of functions being proportional to a duration of the portion of the signal,
  - c) performing the number of soft-clippings on the signal by means of a reference function, the positions of the soft-clippings being given by the positions of the functions and the respective scalings of the reference function being determined by the amplitudes of the functions.
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10. A telecommunication system having at least one base station comprising an electronic circuit for reducing a peak-to-average power ratio of a signal to be transmitted, the electronic circuit being adapted to perform the reduction by detecting a portion of the signal being above a clipping threshold level, decomposing the portion of the signal into a number of functions, the number of functions being proportional to a duration of the portion of the signal, and performing the number of soft-clippings on the signal.
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